

Difference in Excitement While Watching Male vs. Female Athletes

Abstract

Our study explores the difference between male and female sports and aims to understand whether the difference in popularity between men's teams and women's teams is validated by a significant difference in attention and excitement levels of the viewer or other societal factors. Our study consisted of 26 participants (10 male, 16 female), who each answered multiple sets of survey questions and watched two videos of college basketball clips (one featuring a men's team and another, a woman's team). During the experiment, we measured recorded interest and self-reported interest between male and female viewers, regarding male and female athletes. We measured attention, engagement, and excitement through eye-tracking technology (measuring fixation count and fixation duration), facial recognition software (measuring engagement and attention), and Galvanic Skin Response (GSR) data (measuring arousal). Based on existing literature, we know that female athletes are less broadcasted and make less money, and the reception of women's teams may likely be influenced by misogyny or other societal factors. Our research aims to fill the gap in research comparing men's and women's sports in a distinctly quantifiable way.

Research Questions

- RQ1:** Do viewers' excitement levels and attention differ between watching men's sports and women's sports?
- RQ2:** Does the gender of the athletes impact the attention and excitement of viewers?
- RQ3:** Does the viewer's gender impact the attention to male vs. female athletes?
- RQ4:** Is there a difference between a subject's self-reported level of excitement and physiological indicators of attention and excitement?

Definitions

- Biometrics:** The application of statistical analysis to biological data
- Eye tracking:** The recording and study of the movement of the eyes in following a moving object or other stimulus. Eye tracking devices measure eye position and eye movement
- Facial expression analysis:** Analyzing the facial changes in response to a person's internal emotional states, intentions, or social communications
- Galvanic Skin Response (GSR):** A change in the electrical resistance of the skin caused by emotional stress, measurable with a sensitive galvanometer. GSR can indicate excitement and or arousal.

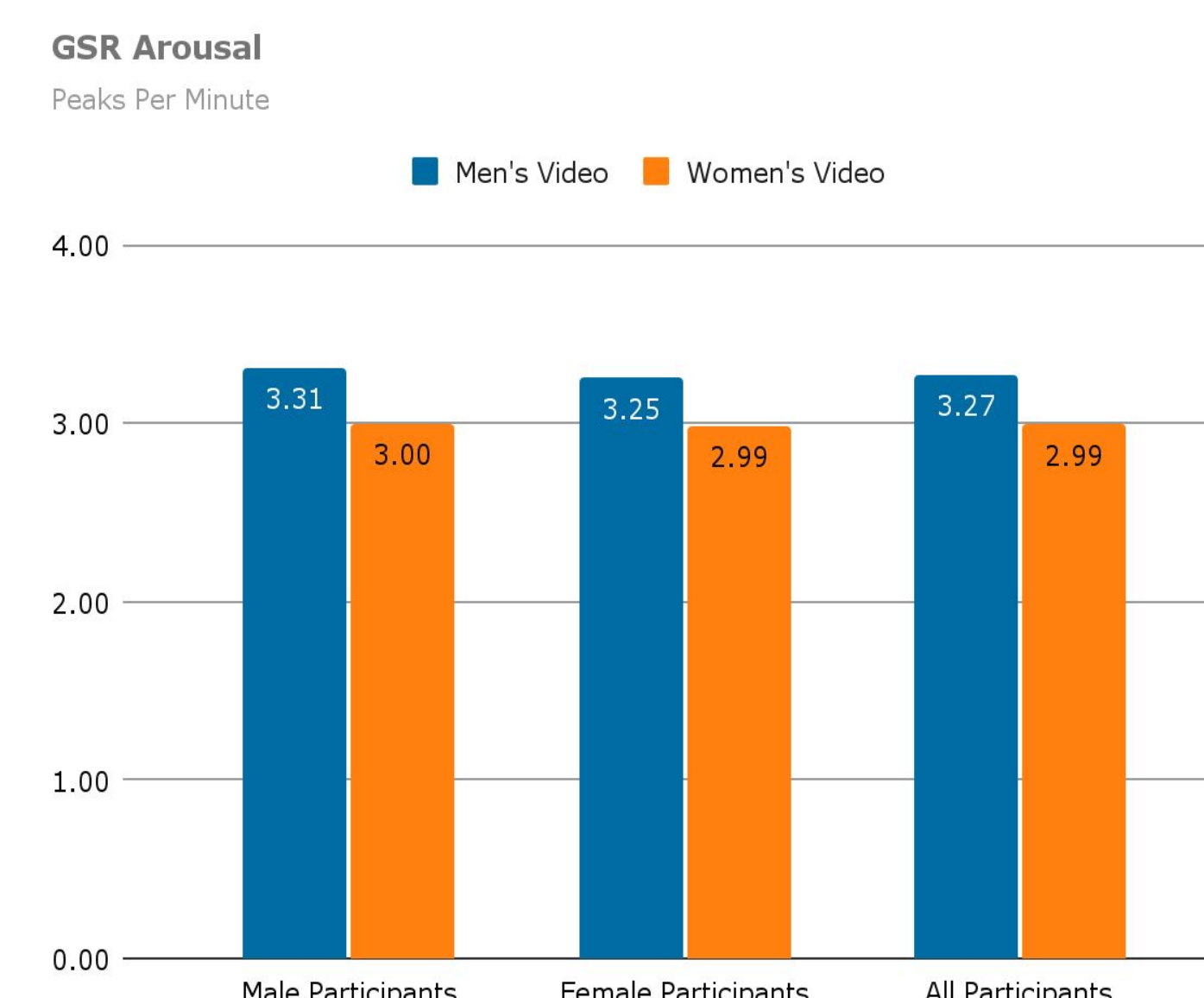
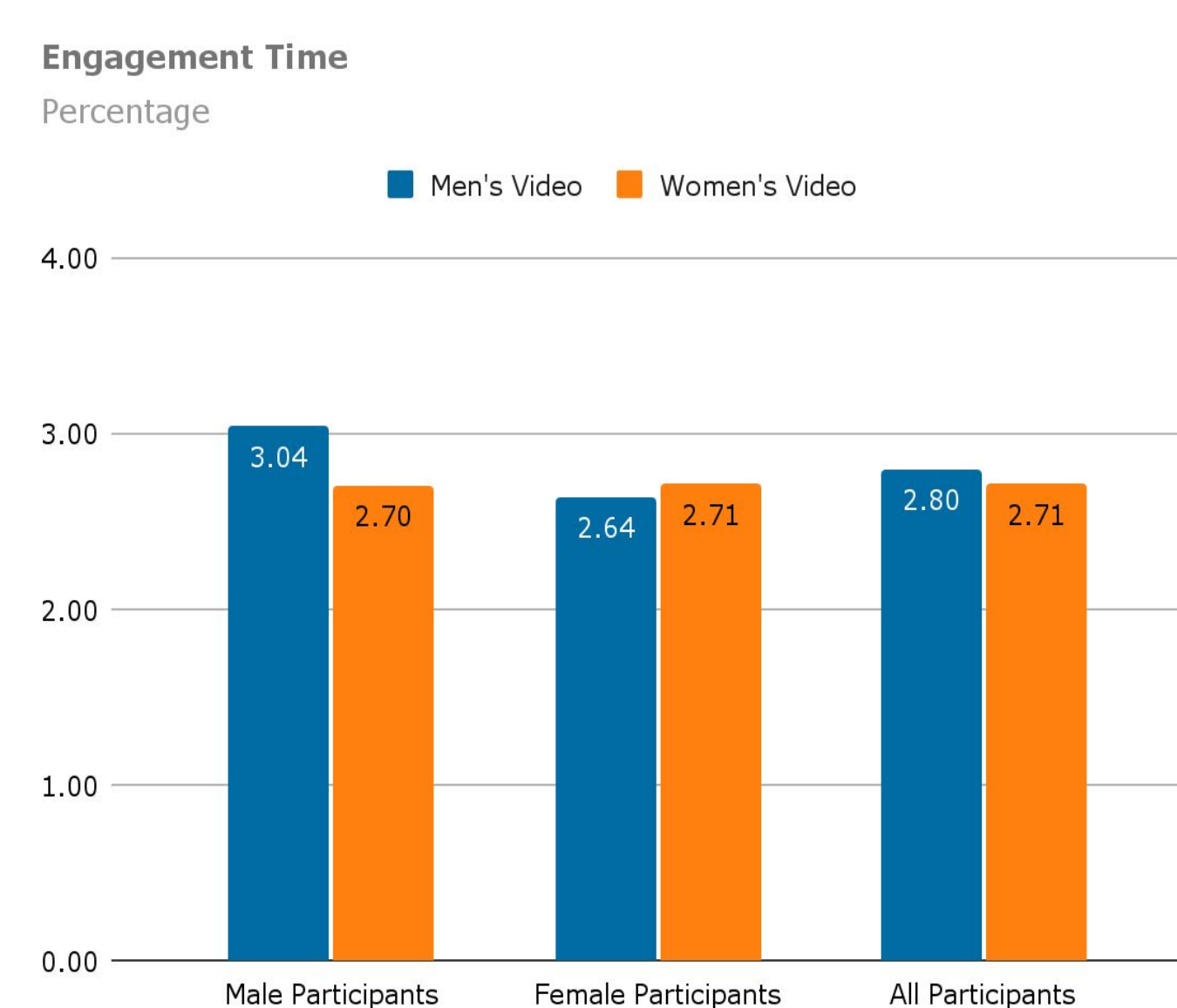
Results

Hypothesis 1

- H1(A):** There will be no statistically significant difference in interest recorded via biometric equipment for males watching men's vs women's sports. **SUPPORTED**
- H1(B):** There will be no statistically significant difference in interest recorded via biometric equipment for females watching men's vs women's sports. **SUPPORTED**



Engagement (Facial Expression Analysis) and Arousal (GSR Peaks) during the Women's video



Male participants' recorded arousal (In GSR Peaks Per Minute) is not significantly different when watching men's vs women's sports.
 • $p=0.597, p>.05$, with equal variances assumed
Female participants' recorded arousal (In GSR Peaks Per Minute) is not significantly different when watching men's vs women's sports.
 • $t=0.594, p>.05$, with equal variances assumed
Differences in engagement percentage and attention percentage were not significant.

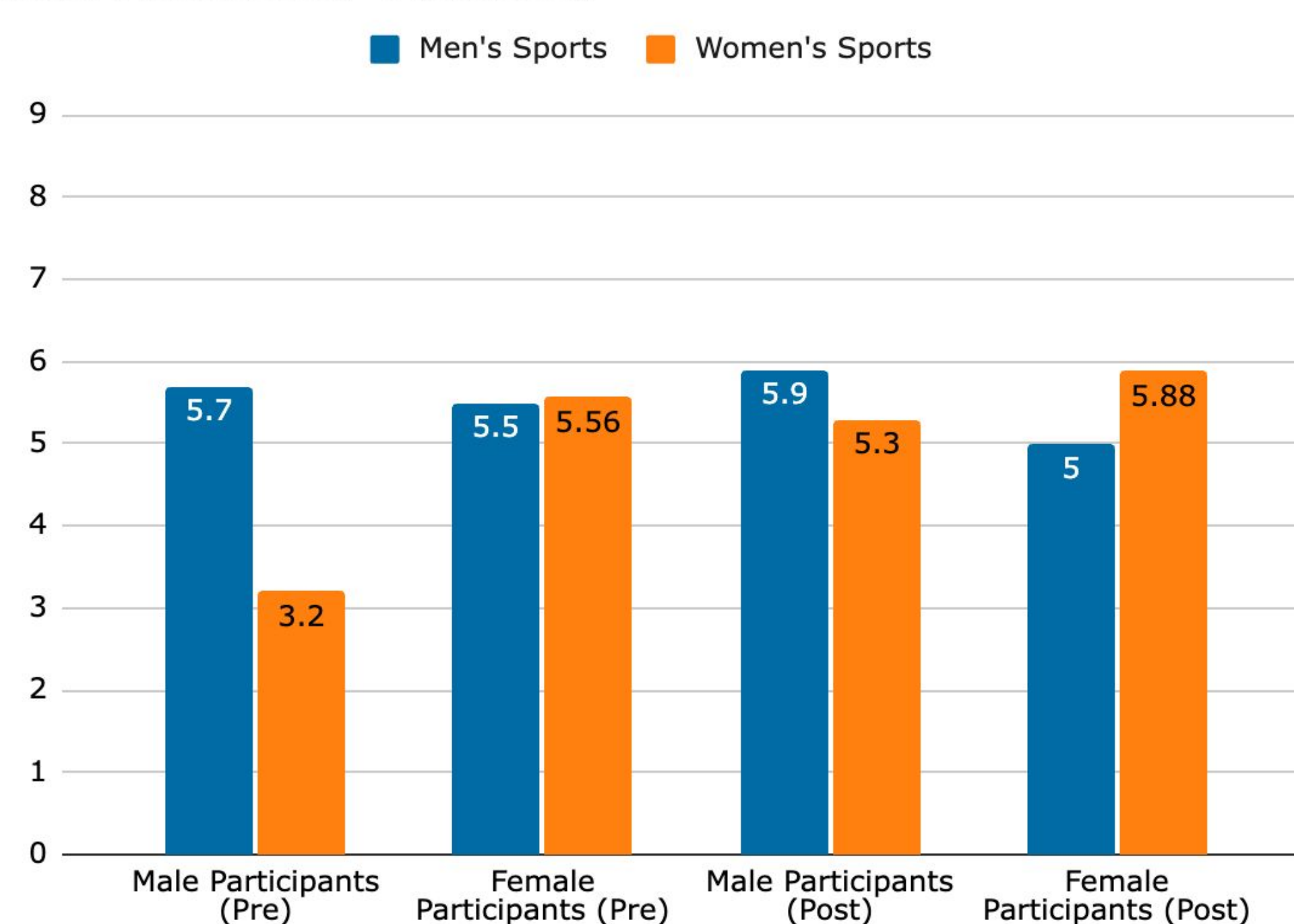


Engagement (Facial Expression Analysis) and Arousal (GSR Peaks) during the Men's video

Hypothesis 2

- H2(A):** Male's self-reported interest will favor men's basketball. **SUPPORTED.**
- H2(B):** Women's self-reported interest will favor women's basketball. **NOT SUPPORTED.**

Viewer's Self-Reported Interest in Gendered Athletes
Ranked 1 (Uninterested) - 9 (Interested)



Male participants' self-reported interest is higher for men's sports than women's sports.
 • $t=-2.178, p>.05$, with equal variances assumed
Male participants' self-reported interest in women's sports increased after watching the videos.
 • $t=2.307, p>.05$, with equal variances assumed
All other differences in average self-reported interest were not significant.

Hypothesis 3

- H3(A):** There will be a significant difference in male's self-reported interest and measured interest in men's vs. women's sports. **SUPPORTED***
- H3(B):** There will be a significant difference in women's self-reported interest and measured interest in men's vs. women's sports. **NOT SUPPORTED***

Difference in Self-Reported and Recorded Interest and Engagement Between Videos

		Self-reported interest	Recorded GSR	Scaled GSR	Recorded Engagement	Scaled Engagement
Male Participants	Men's video	5.80	3.31	2.59	3.04	1.52
	Women's video	4.25	3.00	2.34	2.7	1.35
	Difference?	36.47%		10.33%		12.59%
Female Participants	Men's video	5.25	3.25	2.54	2.64	1.32
	Women's video	5.72	2.99	2.34	2.71	1.36
	Difference?	-8.22%		8.70%		-2.58%

This chart shows the self-reported metrics and biometrics for interest and engagement between the men's and women's videos for each participant group. The GSR and Engagement metrics have been scaled to the same 1-9 scale used in the surveys using $Y = ((X - 1)/Xrange)*9$.

*The low number of participants led to an inability to conduct testing to prove statistical significance in the difference between the self-reported differentials and recorded differentials; this group determined the >20% difference shown to be evidence supporting H3(A), but that the differences were not large enough to support H3(B).

Conclusion

Based on our analysis, shown above, this study concluded that there is not a significant difference in the physiological response to viewing men's vs. women's collegiate basketball games. The research conducted showed that men's self-reported interest in sports favors men's sports, while women did not have a significant difference in preference. By scaling the biometric data and comparing the self-assessment of interest, this study concluded that there is a significant difference in *only* men's self-reported interest and measured interest in men's vs. women's sports, where men will report a preference for watching men's sports teams, but show no difference in engagement, attention, or arousal while watching the different genders play. Therefore, the difference in self-reported interest and cultural differences in men's and women's sports must be attributed to outside, societal factors, and not the practice of the sport by male or female athletes itself.